Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of	)	
Advanced Telecommunications	)	
Capability to All Americans in a Reasonable	)	GN Docket No. 07-45
and Timely Fashion, and Possible Steps	)	
to Accelerate Such Deployment	)	
Pursuant to Section 706 of the	)	
Telecommunications Act of 1996	)	

COMMENTS OF
THE NEBRASKA RURAL INDEPENDENT COMPANIES

1. Introduction

The Nebraska Rural Independent Companies (the "Nebraska Companies") appreciate the opportunity to respond to the Notice of Inquiry ("NOI")[1] in the above-referenced docket, released April 16, 2007 by the Federal Communications Commission (the "Commission"). The Nebraska Companies are eighteen rural telephone companies[2] that provide, either directly or through affiliates, high speed Internet access service in every one of the 157 Nebraska telephone exchanges in which they operate as incumbent local exchange carriers ("ILECs"), using Digital Subscriber Line ("DSL") technology as well as other types of last-mile facilities. The Nebraska Companies provide broadband

[1] *See In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunicatioizs Act of 1996*, GN Docket No. 07-45 (rel. April 16, 2007).

[2] The Nebraska Companies are Arlington Telephone Company, The Blair Telephone Company, Cambridge Telephone Company, Clarks Telecommunications Co., Consolidated Telco Inc., Consolidated Telecom, Inc., Consolidated Telephone Company, Curtis Telephone Company, Eastern Nebraska Telephone Company, Great Plains Communications, Inc., Hartington Telecommunications Co., Inc, Hershey Cooperative Telephone Company, Inc., K&M Telephone Company, Inc., Nebraska Central Telephone Company, Northeast Nebraska Telephone Company, Rock County Telephone Company, Stanton Telecom, Inc., and Three River Telco.

subscribership data to the Commission in compliance with its data gathering orders, on

Fonn 444

II. The Definition of "Advanced Telecommunications Capability" Should Include End-to-End Network Performance Capability and Should Recognize the Unique Role of the Public Internet.

The Commission, in its first four Reports[3] on the availability of "advanced telecommunications capability" in the U.S., has applied a consistent definition of the term that focuses on last-mile network access speeds in both directions, and has recently developed multiple speed tiers to more fully capture the evolving nature of deployment of and subscribership to such network access services. The Nebraska Companies urge the Commission to move beyond such exclusive focus on last-mile bandwidth, however, and to instead recognize that the "advanced telecommunications capability" defined by Congress in Section 706 of the 1996 Telecommunications Act[4] incorporates end-to-end network perfonnance capabilities as well as the speed of users' last-mile access facilities. The "voice, data, graphics and video telecommunications"[5] which users are meant to be able to "originate and receive"[6] by virtue of using advanced telecommunications capability are not merely transported across last-mile facilities, but must also traverse a network whose scope may, in some cases, be global.

The Commission's first three *Reports* included discussions of internal network elements such as backbone and middle-mile facilities, Internet peering and

---

[3] The Reports are cited in note 4 of the NOI. For reference, they are documents FCC 99-5 *(First Report)*, FCC 00-290 (*Second Report*), FCC 02-33 (*Third Report)* and FCC 04-208 *(Fourth Report).*

[4] *See* § 706(c) of the Telecommunications Act of 1996, Pub. L. 104-104, 110 Stat. 56 (1996) (1996 Act), reproduced in the notes under 47 U.S.C. § 157.

[5] *Ibid.*

[6] *Ibid.*

interconnection points. While these extremely brief discussions did not attempt to quantify end-to-end network performance in any way, their inclusion in those *Reports* at least acknowledged the existence of such internal network components and suggested that such internal components might affect users' experiences with high speed Internet activity as much as last-mile bandwidth would. Regrettably, the *Fourth Repovt* fails even to mention any internal network components, focusing exclusively on last-mile access technologies and their bit rates. The Nebraska Coinpanies suggest that the Commission should reverse this troubling trend in its reporting and, instead, embark on a more penetrating analysis of factors that influence network performance beyond last-mile bandwidth. Such analysis could be significantly augmented with empirical measurements of overall network performance.

The Commission's *Fouvth Report* mentions the low latency requirements of such applications as Voice over Internet Protocol ("VoIP"), yet fails to observe that the latency experience by users in a VoIP conversation includes not only the latency introduced by each user's last-mile access link, but also the latency introduced by the long-haul network between those access links. Furthermore, the *Fourth Report's* discussion of New Developments in Services and Applications fails to distinguish between services provided via the public Internet and services offered over private IP networks, but instead conflates them. A typical DOCSIS VoIP phone, for example, is not an addressable device on the public Internet.

The Nebraska Companies believe the Commission should make its definition of "advanced telecommunications capability" more specific – explicitly acknowledging that it is the public Internet that provides the "switched" functionality referred to in the

statutory definition, and that high speed services that do not provide users with access to the public Internet do not meet the standard that Congress intended. Certain high speed networks operating in a closed IP address space may very well provide users with useful information and quality entertainment, but the Nebraska Companies believe it is the public Internet which constitutes the networking vehicle that delivers the sort of "capability" that Congress envisioned in Section 706, and that serves as the platform on which the cyberspace economy thrives.

Finally, in taking account of end-to-end Internet network performance, the Commission must bear in mind that, despite the universality of Internet Protocol, the Internet is in fact physically heterogeneous, its constituent parts coming from a wide variety of equipment manufacturers, software designers and service providers.

III. The Nebraska Companies Have Made Substantial Progress in Deploying Broadband Internet Access Services Throughout Their Sparsely Populated Service Areas

As noted in the Introduction to these Comments, the Nebraska Companies and their affiliates provide high speed Internet access services in all 157 telephone exchanges in which they operate as the ILEC. The Nebraska Companies' exchanges range in size from under twenty square miles to over 1,100 square miles and, according to the 2000 Census, contain between 48 and 4,075 households. A few of the Nebraska Companies' exchanges could be characterized as "suburban" or "exurban," but the vast majority are very sparsely populated. U.S. Census data from 2000 indicates these 157 exchanges have, on average, a household density of less than two households per square mile. Many of these exchanges are in Nebraska's cattle ranching country, where one household per three to five square miles is the norm. For example, the Cody exchange in northwest

Nebraska has, according to the 2000 Census, about 135 households – half of them located in the small town of Cody itself, the other half scattered throughout the remaining 438 square miles of the exchange. The household density of the out-of-town portion of the Cody exchange is thus less than 0.16 households per square mile.

Despite the extremely rural characteristics of their exchanges, the Nebraska Companies (or their affiliates) offer DSL in 154 of their ILEC exchanges. Further, DSL is available to 100% of potential subscribers in 51, or one-third, of the 154 DSL-capable exchanges. On average, 91% of households in the Nebraska Companies' 157 ILEC exchanges have access to DSL. The most common maximum download speed for the Nebraska Companies' DSL services is 1 Mbps, while DSL with *3* Mbps download is available in over twenty exchanges. Maximum upload speeds range from 256 kbps to 1.5 Mbps, with the most common being 512 kbps. In addition to DSL, several of the Nebraska Companies or their affiliates provide high speed Internet access via cable modem and/or fixed wireless technologies. Six of the Nebraska Companies (or affiliates) offer WildBlue satellite service, as part of the cooperative effort of nine rural companies in Nebraska to make satellite service available in every part of the state.[7]

The Nebraska Companies have made limited use of DSL extension devices to serve customers at great distances from the central office, viewing such devices as essentially providing only an interim solution. Many of the Nebraska Companies have made, and continue to make, substantial investments in fiber/copper local distribution facilities, permitting the 1 to 3 Mbps speeds noted above, and permitting even greater speeds with future upgrades in DSL electronics.

[7] *See* http://www.wildbluenebraska.net/

IV. Investment Incentives for Broadband Local Distribution Should Focus on Areas Outside of the City Limits

The Commission, in its NOI, stated that it intends to "seek to develop a greater understanding of the economics underlying deployment of advanced telecommunications capability and services that utilize that capability."[8] Specifically, the Commission asks, "[d]o the economics of deploying advanced telecommunications capability limit its availability in some geographic areas?"[9]

The Nebraska Companies believe that the economics associated with providing a broadband capable network in rural areas are very different from the economics seen in urban, suburban and unincorporated areas surrounding cities. The economies of scale are much lower in rural areas because the household density is so low. In order to provide broadband to all customers in the rural areas served by the Nebraska Companies, it is necessary to invest large amounts of capital to replace facilities currently not capable of transporting data at broadband speeds over the large distances associated with local loops in many rural areas.

The Nebraska Companies further believe that focusing investment incentives for broadband local distribution on areas outside of city limits would help ensure broadband deployment in rural areas. Section 254(b)(5) of the Telecommunications Act of 1996 states that there "should be specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service."[10] This same goal of

---

[8] *See NOI* at ¶ 18.

[9] *Ibid.*

[10] *See 47 U.S.C.§ 254(b)(5).*

predictability, stability and sufficiency should apply to the creation of broadband-capable infrastructure.

The Nebraska Universal Service Fund ('NUSF'") serves as an example of a distribution methodology that focuses investment incentives on areas outside of city limits. The Nebraska Public Service Commission *("NPSC")* created a permanent state universal service fund mechanism in 2004. The *NPSC* has stated that "the proposed methodology highly targets support to the most costly and sparsely populated out-of-town service areas where NUSF support is needed."" The NPSC's NUSF distribution mechanism is based on a forward-looking model that develops expected loop costs for each support area in the state. The mechanism accounts for loop costs in out-of-town areas by using Census data to calculate household densities separately for in-town and out-of-town areas." The household density of an area is strongly correlated with local loop cost, with low household density associated with high local loop cost. While Nebraska is a state with widely varying population densities, the NPSC's model successfully targets funds to those areas with the highest costs. The NPSC released statistics on its model, stating that "greater than 98 (98.0%) percent of Program support is allocated to support areas with less than seven (7) households per square mile. Further, greater than 99 (99.0%) percent of support is allocated to rural, 'out-of-town', support areas."[13]

[11] *See In the Matter of the Nebraska Public Service Commission, on its own motion, seeking to establish a long-term universal service funding mechanism,* NUSF-26, *Opinion and Finding,* (entered Nov. *3,* 2004) at ¶ **11.**

[12] *Id.* at ¶¶ 45 – 54 (for a more thorough analysis of the NLJSF distribution model)

[13] *Id.* at ¶ 56.

Broadband deployment in rural areas depends on the predictability and stability of universal service funding to address the economics associated with providing such a valuable service to this country's most high-cost consumers. The NUSF serves as an example of a program that creates incentives to invest in areas in which it is the most costly to provide broadband Internet access.

V. Universal Service Support and Reasonably Priced Access to Internet Backbone Are Critical to Deployment in Rural Areas.

As noted above, the Nebraska Companies have deployed high speed Internet access capability at speeds meeting the Commission's definition of "advanced telecommunications capability" in every telephone exchange in which they offer service. Most of these rural exchanges are characterized by extremely low population densities, and lack sufficient demand to sustain a market for high speed Internet access without additional support. Universal service support – at both the federal and state levels – has enabled the Nebraska Companies to deploy high speed Internet access in locations where market forces alone cannot sustain such a service offering. The Nebraska Companies appreciate the attention the Commission has given to the importance of its own universal service programs in promoting the availability of high speed Internet access in rural areas, and encourage the Commission to also recognize the important role that state USF programs can play in achieving federal policy goals. In particular, the Nebraska Companies urge the Commission to exercise restraint in limiting the states' authority to assess telecommunications revenues in funding state USF programs, and to support states such as Nebraska in their efforts to target high cost support to those areas where it is most needed.

The Nebraska Companies also emphasize that deployment of high speed Internet access is not a one-time event, but, as the Commission clearly appreciates in its Reports, is rather an ongoing process of upgrading transmission facilities and equipment to meet continually rising consumer expectations. The financial commitments undertaken to deploy fiber optic facilities into sparsely populated areas for local distribution are generally long term in nature, and are usually made under the assumption that regulators will maintain their commitments to supporting high cost infrastructure in locations where market forces alone are insufficient to justify this type of investment.

Finally, the Nebraska Companies observe that, without reasonably priced access to backbone Internet services in rural areas, deployment of advanced telecommunications capability in rural areas will be inhibited. The Coinmission's statutory mandate to "encourage [...] deployment [...] by utilizing [...] regulating methods that remove barriers to infrastructure investment"[14] would be well served, in the opinion of the Nebraska Companies, by examining whether the market in Internet backbone services is, in some geographic areas, sufficiently competitive, or whether Internet backbone providers exercise undue market power in certain locations.

[14] ***See*** § 706(c) of the Telecommunications **Act** of 1996, Pub. L. 104-104, 110 Stat. **56** (1996) (1996 Act), reproduced in the notes under 47 U.S.C. § 157.

Dated: May 16, 2007.

Respectfully submitted,

The Nebraska Rural Independent Companies:

Arlington Telephone Company,
The Blair Telephone Company,
Cambridge Telephone Company,
Clarks Telecommunications Co.,
Consolidated Telco Inc.,
Consolidated Telecom, Inc.,
Consolidated Telephone Company,
Curtis Telephone Company,
Eastern Nebraska Telephone Company,
Great Plains Communications, Inc.,
Hartington Telecommunications Co., Inc,
Hershey Cooperative Telephone Company, Inc.,
K&M Telephone Company, Inc.,
Nebraska Central Telephone Company,
Northeast Nebraska Telephone Company,
Rock County Telephone Company,
Stanton Telecom Inc., and
Three River Telco

By: _____

Paul M. Schudel. No. 13723
James A. Overcash, No. 18627
WOODS & AITKEN LLP
301 South 13th Street, Suite 500
Lincoln, Nebraska 68508
(402) 437-8500
(402) 437-8558 Facsimile

THEIR ATTORNEYS